

**ABSTRACT OF THE DISCLOSURE**

A system and method for controlling carbon dioxide (CO<sub>2</sub>) emissions emanating from a gas source includes a CO<sub>2</sub> sorbent bed containing a regenerable sorbent. Exhaust gases flow through the CO<sub>2</sub> sorbent bed before being released into the atmosphere. The CO<sub>2</sub> sorbent bed traps CO<sub>2</sub> contained within the exhaust gas to control the amount of CO<sub>2</sub> finally exhausted to the atmosphere. At least two CO<sub>2</sub> sorbent beds are used such that while one is absorbing CO<sub>2</sub> from the gas stream another is being regenerated. The CO<sub>2</sub> sorbent bed is regenerated to release the trapped CO<sub>2</sub> for disposal or use in other processes. The CO<sub>2</sub> sorbent beds are cycled between absorbing CO<sub>2</sub> and regenerating to optimize absorption of CO<sub>2</sub>.

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